THE JAPANESE JOURNAL OF

PHARMACOLOGY

Official Publication of the Japanese Pharmacological Society

Volume 56

1991

published by

THE JAPANESE PHARMACOLOGICAL SOCIETY

Monthly

THE JAPANESE JOURNAL OF PHARMACOLOGY

Chief Editor

Chikako Tanaka (Kobe)

Press Editor

Masamichi Satoh (Kyoto)

Editors

Yasuo Gomi (Kanazawa)
Hiro-o Kamiya (Fukuoka)
Ryuichi Kato (Tokyo)
Naomasa Miki (Osaka)
Koichi Ishikawa (Tokyo)
Morio Kanno (Sapporo)
Makoto Katori (Sagamihara)
Masashi Sasa (Kyoto)

Editorial Advisory Board

Youichi Abe (Kagawa)
Tomoko Fujii (Tokyo)
Takehiko Hukuhara (Tokyo)
Tadao Itoh (Yonago)
Hirosi Kuriyama (Fukuoka)
Tomoh Masaki (Kyoto)
Yoshimi Misu (Yokohama)
Hideaki Ogura (Tokyo)
Iwao Ohtsuki (Fukuoka)
Susumu Satoh (Sendai)
Michio Ui (Tokyo)
Takehiko Watanabe (Sendai)
Yasushi Abiko (Asahikawa)
Hiroyoshi Hidaka (Nagoya)
Chiyoko Inagaki (Moriguchi)
Hideaki Karaki (Tokyo)
Kinya Kuriyama (Kyoto)
Tomohiro Matsuda (Nagoya)
Eishichi Miyamoto (Kumamoto)
Sachiko Oh-ishi (Tokyo)
Kiyomi Saeki (Okayama)
Issei Takayanagi (Funabashi)
Kazuo Watanabe (Chiba)

Language Editor

Stephanie M. Jung

Editorial Assistans

Yoko Ashida Yoko Takezaki

Editorial Office, The Japanese Pharmacological Society,
c/o Department of Pharmacology, Faculty of Medicine, Kyoto University,
Sakyo-ku, Kyoto 606, Japan.
TEL: 075-761-8789, 075-753-4395 FAX: 075-771-8972

CONTENTS OF VOLUME

Regular papers

No. 1 May 1991

Comparison of cardiovascular effects of a novel class Ic antiarrhythmic agent, NIK-244, with those of flecainide in isolated canine heart preparations cross-circulated with a donor dog Atsushi Sugiyama, Shigeru Motomura and Keitaro Hashimoto 1

Effect of three novel K^+ channel openers, cromakalim, pinacidil and nicorandil on allergic reaction and experimental asthma
Hiroichi Nagai, Kunihiko Kitagaki, Shoichi Goto, Hiroshi Suda and Akihide Koda 13

A difference in receptor mechanisms for muscarinic full and partial agonists
Issei Takayanagi, Mariko Harada and Katsuo Koike 23

Effects on brain biogenic amines of repeated treatments with calcium antagonists
Renato Gaggi and Anna Maria Gianni 33

Chronopharmacology of the new uricosuric diuretic S-8666 in rats: (II) examination in aged rats Akio Fujimura, Hiroyuki Kajiyama, Kyo-ichi Ohashi and Akio Ebihara 43

Decrease in muscle tension and reduced pyridine nucleotides of the guinea pig ileal longitudinal smooth muscle in high K^+,Na^+-deficient solution
Kazumasa Shimizu, Tsuyoshi Kaburagi, Shinjiro Nakajyo and Norimoto Urakawa 53

Effects of antiestrogens on ovarian aldo-keto reductase in relation to ovulation in rats
Niro Inaba, Norihisa Inazu, Hiroshi Kogo and Tetsuo Satoh 61

Observation of the development of tolerance to and physical dependence on barbital by cortical evoked potential in rats Akira Shimada and Tomoji Yanagita 71

Effects of NZ-107 on tracheal responses to adenosine in the guinea pig
Akiko Yamamoto, Ken-ichi Shikada, Takehisa Iwama, Mitsuaki Sakashita, Morihide Hibi and Sakuya Tanaka 79

Changes in convulsion susceptibility of lidocaine by alteration of brain catecholaminergic functions Yoshimichi Yoshimura, Toshihiro Dohi, Shoukichi Tanaka, Kazuaki Takada and Akira Tsujimoto 85

No. 2 June 1991

Footshock- and psychological-stress prevent the development of tolerance to spinal but not supraspinal morphine Masakatsu Takahashi and Hiroshi Kaneto 121

The response to acoustic stimulation and the changes in brain amine levels after repeated administration of β-phenylethylamine in rats
Mitsuhiko Yamada, Yuji Kiuchi, Miyuki Hashimoto, Katsuji Oguchi and Hajime Yasuhara 127

Histological detection of lipid peroxidation following infusion of *tert*-butyl hydroperoxide and ADP-iron complex in perfused rat livers Yasusuke Masuda and Yasuko Yamamori 133

Histological evidence for dissociation of lipid peroxidation and cell necrosis in bromotrichloromethane hepatotoxicity in the perfused rat liver
Yasusuke Masuda and Yasuko Yamamori 143

Propylbenzilylcholine mustard (PrBCM)-sensitive cholinoceptors and contractile response to partial agonist in guinea pig ileal muscle
Issei Takayanagi, Hiroshi Ohtsuki, Kiyoshige Saito, Katsuo Koike and Mitsutoshi Satoh 151

The inhibitory effect of a novel antiatheromatous agent, E5050, on the intimal thickening of aorta in cholesterol-fed rabbit in vivo Takao Saeki, Issei Ohtsuka, Ryoichi Hashida, Hiroyuki Shiojiri, Isao Yamatsu, Nobuhiro Morisaki and Yasushi Saito 159

The effects of saikosaponin-d on yeast phagocytosis and degradation in peritoneal macrophages: Related increase in Fc receptor expression and altered cytoplasmic organization
Yumiko Ushio and Hiroko Abe 167

Effect of HEBP (1-hydroxyethylidene-1,1-bisphosphonate) on experimental osteoporosis induced by ovariectomy in rats
Akifumi Togari, Michitsugu Arai, Masatoshi Hironaka, Shosei Matsumoto and Hisashi Shinoda 177

Anti-nicotinic and anti-muscarinic actions of eperisone in the isolated canine atrium
Kimiaki Saegusa, Yasuyukk Furukawa, Kunio Akahane, Masayuki Haniuda and Shigetoshi Chiba 187

Inhibitory effect of a biscoclaurine alkaloid, cepharanthin, on lung metastasis of Lewis lung carcinoma Hitoshi Ito, Hiroko Ito, Hideomi Amano and Hiroyuki Noda 195

Inhibitory regulation of serum factor(s)-caused ornithine decarboxylase induction by the protein kinase C system in A431 human epidermoid carcinoma cells
Teruo Nakadate, Satoshi Yamamoto, Yoshitaka Kamegaya, Motoko Ishihara, Eriko Aizu, Hong Jiang and Ryuichi Kato 203

No. 3 July 1991

Effect of S-312, a new calcium channel blocker, on the 1,4-dihydropyridine binding sites in porcine basilar blood vessels and rat aortic smooth muscle cells
Shin-ichi Mihara and Masafumi Fujimoto 249

Stimulatory effect of N-[4-[2-(dimethylamino)ethoxy]benzyl]-3,4-dimethoxybenzamide hydrochloride (HSR-803) on normal and delayed gastrointestinal propulsion
Yuji Iwanaga, Naoshi Miyashita, Fujie Mizutani, Kouji Morikawa, Hideo Kato, Yasuo Ito and Zen Itoh 261

Gastric bleeding and increased gastric vascular permeability induced by platelet activating factor (PAF): Effect of drugs that affet arachidonate metabolism
Kumi Hatakeyama, Shingo Yano and Kazuo Watanabe 271

Effect of a new calcium entry blocker, NB-818, on delayed neuronal death in the ischemic gerbil hippocampus
Kazuo Kamei, Sonoko Tsuchida, Kazuhiro Taguchi and Masaru Nishikibe 279

NMDA induces protein kinase C translocation in guinea pig cerebral synaptoneurosomes
Susumu Etoh, Akemichi Baba and Heitaroh Iwata 287

Evidence for the existence of serotonin uptake inhibitor-like substances in human cerebrospinal fluid Shinichiro Goto, Toru Egashira and Yasumitsu Yamanaka 297

Working memory deficit in aged rats in delayed nonmatching to position task and effect of physostigmine on performance of young and aged rats Hiroyuki Ohta, Xiao-Hu Ni, Kinzo Matsumoto and Hiroshi Watanabe 303

Release of digestive enzymes from isolated rat pancreatic acini following muscarinic stimulation: A comparative study with enzyme release and receptor binding Masato Kato, Seitaro Ohkuma, Keisho Kataoka, Kei Kashima, Teruo Mukainaka and Kinya Kuriyama 311

Some correlations between local anesthetic-induced convulsions and γ-aminobutyric acid in rat spinal cord Kohei Sawaki, Kazunori Ouchi, Toshihiro Sato and Mitsuru Kawaguchi 327

Presynaptic sites of isolated canine saphenous veins are more sensitive to protein kinase C than postsynaptic ones Yoshinobu Takata, Junko Ozawa and Hitoshi Kato 337

Protective effect of vinpocetine against brain damage caused by ischemia Ralf Rischke and Josef Krieglstein 349

Active principle of swine prostate extract: I. Isolation of active principle activating prostatic acid phosphatase and its effect on testosterone uptake of the prostate in castrated rats Yoichi Yoshida, Hiroshi Mori, Kanji Inami and Akihide Koda 357

Hemodynamic effects of benazeprilat in the anesthetized dog with acute left ventricular failure Mikio Nakazawa, Takao Sawanobori, Koichi Iwasaki and Shoichi Imai 369

No. 4 August 1991

Effects of calcium channel agonists (BAY K 8644, CGP28392 and YC-170) on ^{45}Ca uptake by rat uterine segments Seiji Ichida, Syunji Ariyoshi, Takashi Fujisue, Tetsuyuki Wada and Takafumi Akimoto 397

Blood coagulation and fibrinolysis in SART-stressed (repeated cold-stressed) rats and drug effects on the altered hemostatic parameters Taeko Hata, Atsufumi Kawabata and Eiji Itoh 403

Effect of phospholipase A_2 on temperature-induced high-affinity [^{3}H]tryptamine binding sites in rat brain Michiko Saito, Shigefumi Serikyaku and Ryoichi Ishitani 413

Influence of chronic lithium treatment on urinary amount of furosemide in rats Akio Fujimura, Kyo-ichi Ohashi and Akio Ebihara 421

Congestive heart failure model in rabbits: Effects of digoxin and a drug containing toad venom Shin-ichi Morishita, Masamichi Shoji, Yasuhiro Oguni, Chihiro Ito, Katsuhiko Noguchi and Matao Sakanashi 427

Roles of sulfhydryl compounds in the gastric mucosal protection of the herb drugs composing Oren-gedoku-to (a traditional herbal medicine) Hideki Takase, Osamu Inoue, Yuji Saito, Eizaburou Yumioka and Akira Suzuki 433

Active principle of swine prostate extract: II. Effect of a peptide isolated from swine prostate extract on rat prostate Yoichi Yoshida, Hiroshi Mori, Kanji Inami and Akihide Koda 441

Enhancement of the ambulation-increasing effect of opioid analgesics by ethanol in mice
Hisashi Kuribara, Toshio Asashi and Sakutaro Tadokoro 457

Studies on antinephritic effect of TJ-8014, *Sho-saiko-to-kyo-shyokyo-ka-ouren-bukuryou* (5): Effects on puromycin aminonucleoside nephrosis and its mechanisms
Tomohisa Hattori, Mikio Ito and Yoshio Suzuki 465

A reliable method for the production of antral gastric ulcer by a combination of 2-deoxy-D-glucose, aspirin and ammonia in rats
Masayuki Uchida, Shingo Yano and Kazuo Watanabe 475

Drug effects on cognitive function in mice determined by the non-matching to sample task using a 4-arm maze Kenichi Furusawa 483

Human acidic fibroblast growth factor has trophic effects on cultured neurons from multiple regions of brain and retina
Hiroshi Hisajima, Takehiko Miyagawa, Hiroshi Saito and Nobuyoshi Nishiyama 495

Effects of chronic administration of carteolol on β-adrenoceptors in spontaneously hypertensive rat heart Koichi Ebii, Reiko Fukunaga, Takashi Taniguchi, Motohatsu Fujiwara, Sunao Nakayama, Yoichi Saitoh and Yukio Kimura 505

Effects of MCI-727, a new anti-ulcer agent, on plasma secretin concentration in rats and dogs and pancreatic exocrine secretion in rats Makoto Kawamura, Satoshi Yamazaki, Akihiro Tobe, Shin-ichiro Watanabe and Tadashi Takeuchi 513

Comparison of α_1-adrenoceptors between rat brain and spleen
Hiroshi Tsuchihashi, Keiko Maruyama, Shoko Baba, Fumie Mano, Junji Kinami and Takafumi Nagatomo 523

Short Communications

No. 1 May 1991

Microheterogeneity of the alpha subunits of G proteins in bovine brain clathrin coated vesicles Walter I. Silva 93

Detection of G proteins in bovine brain clathrin coated vesicles with common alpha and beta subunits antibodies Walter I. Silva 97

Changes in CNS levels of serotonin and its metabolite in SART-stressed (repeatedly cold-stressed) rats Taeko Hata, Eiji Itoh and Atsufumi Kawabata 101

Chronopharmacology of the new uricosuric diuretic S-8666 in rats
Akio Fujimura, Kyo-ichi Ohashi and Akio Ebihara 105

The external Ca^{2+}-dependence of acetylcholine-induced contracture in single innervated and denervated skeletal muscle cells in mice
Hiroshi Nojima, Ikuko Kimura and Masayasu Kimura 109

Basic fibroblast growth factor and epidermal growth factor promote survival of primary cultured cerebellar neurons from neonatal rats
Kazuho Abe, Megumi Takayanagi and Hiroshi Saito 113

Functional reinnervation of carotid artery by implanted preganglionic trunk in the cat
Kazuyoshi Kurahashi, Hachiro Usui, Masatsugu Iwamoto, Shunji Aoki, Atsuhiro Kawaguchi and Hiroshi Oikawa 117

No. 2 June 1991

Withdrawal like responses of rat hippocampal slices following brief exposure to morphine
Tadashi Kusama, Yoshie Murakoshi and Hajime Murakami 213

Cytosolic and membrane-bound nitric oxide synthase Kazuaki Hiki, Yoshiki Yui, Ryuichi Hattori, Hiroshi Eizawa, Kunihiko Kosuga and Chuichi Kawai 217

Exacerbation of doxorubicin toxicity by chlorpromazine in male ddY mice
Masaaki Ishikawa, Yoshio Takayanagi and Ken-ichi Sasaki 221

Prolonged inhibition of vascular contraction and calcium influx by the novel 1,4-dihydropyridine calcium antagonist cinaldipine (FRC-8653)
Ryota Yoshimoto, Hideki Dohmoto, Kaoru Yamada and Atuso Goto 225

Effects of bifemalane hydrochloride, a brain function improver, on muscarinic receptors in the CNS of senescence-accelerated mouse
Yoshihisa Kitamura, Toshio Ohnuki and Yasuyuki Nomura 231

Diurnal variation in the diuretic effects of nitrendipine in saline loaded rats
Akio Fujimura, Hiroyuki Kajiyama, Tsuyoshi Shiga, Kyo-ichi Ohashi and Akio Ebihara 237

Intracellular Ca^{2+} and Mg^{2+} regulation for insulin-stimulated glucose uptake into mouse diaphragm muscles
Takeshi Naitoh, Shinjiro Kobayashi, Ikuko Kimura and Masayasu Kimura 241

Difference in pressor responses to N^G-monomethyl-L-arginine between conscious and anesthetized rats
Kazuo Aisaka, Aki Mitani, Yasuo Kitajima, Tomochika Ohno and Takafumi Ishihara 245

No. 3 July 1991

Influence of sialoadenectomy on capsaicin-sensitive "gastric defense mechanism" in rats
Stefano Evangelista and Carlo Alberto Maggi 377

Influence of heat stimulation on the amount of calcitonin gene-related peptide and neurokinin A in the subcutaneous space of the rat hind instep
Norifumi Yonehara, Yasuo Imai and Reizo Inoki 381

Enhancement in β-adrenergic responsiveness of adenylate cyclase in rat liver after galactosamine administration Shinichi Hatta, Norihito Amemiya and Hideyo Ohshika 385

Lung vascular permeability enhanced by sympathetic nerve stimulation in rats
Hiroko Sakakibara, Kazumi Taki, Minoru Kawanishi, Yasuhiro Shimada and Naohisa Ishikawa 391

No. 4 August 1991

Possible optimization of sulphadimidine dosage for acetylator phenotyping
Francis Hombhanje 531

Low Ca^{2+} plus tetraethylammonium medium: Its usefulness in studying the effect of Ca antagonist on adrenergic neurotransmission
Yoshinobu Takata, Junko Ozawa and Hitoshi Kato 535

Involvement of nicotinic receptors in the dorsal motor nucleus of the vagus in regulation of gastric motility in rats Mitsuhiro Nagata and Yoshitsugu Osumi 539

Extracellular ATP stimulates ateroidogenesis in bovine adrenocortical fasciculata cells via P_2 purinoceptors Masahiro Kawamura, Takashi Matsui, Akiyoshi Niitsu, Tsutomu Kondo, Yuji Ohno and Noboru Nakamichi 543

Nilvadipine, a new calcium channel blocker, reduces ischemic brain injury in rats
Shoji Takakura, Teruo Susumu, Hisashi Satoh, Jo Mori, Akihiko Shiino and Jyoji Handa 547

Autoradiographic localization of human calcitonin sensitive binding sites in rat brain
Hiromichi Nakamuta, Yoshihiko Itokazu, Masao Koida, Ronald C. Orlowski and Richard M. Epand 551

The abilities of specific κ-opioid agonists, U-50,488H and U-62,066E, to cause antitussive tolerance were lower than that of morphine
Junzo Kamei, Hiroaki Tanihara and Yutaka Kasuya 557

Involvement of protein kinase activation in neurotrophic effects of basic fibroblast growth factor in cultured brain neurons
Kazuho Abe, Yuka Iri, Megumi Takayanagi and Hiroshi Saito 563